JAN 15 1920

The JOURNAL of GEOGRAPHY

A MAGAZINE FOR TEACHERS

VOLUME XIX NUMBER 1

JANUARY, 1920

IN THIS ISSUE

THE NEW BOUNDARIES OF AUSTRIA

CAPITAL CITIES
F. HOMBURG

FINDING FARMS FOR RETURNED SOLDIERS
ONA I. NOLAN

BLOCK DIAGRAMS
A. K. LOBECK

THE JOURNAL OF GEOGRAPHY

A MAGAZINE FOR TEACHERS

Editor

ISAIAH BOWMAN
Director of the American Geographical Society

Associate Editor

G. M. WRIGLEY

Contributing Editors

ALBERT PERRY BRIGHAM, ... Colgate University, Hamilton, N. Y.
JAMES F. CHAMBERLAIN, ... Southern California Branch, University of California
GEORGE E. CONDRA, ... University of Nebraska, Lincoln, Neb.
RICHARD E. DODGE, ... Washington, Conn.
WILLIAM M. DAVIS, ... Harvard University, Cambridge, Mass.
PHILIP EMERSON, ... Cobbet Grammar School, Lynn, Mass.
N. M. FENNEMAN, ... University of Cincinnati, Cincinnati, O.
WILLIAM M. GREGORY, ... Normal School, Cleveland, O.
J. PAUL GOODE, ... University of Chicago, Chicago, Ill.
MARK JEFFERSON, ... State Normal College, Ypsilanti, Mich.
A. E. PARKINS, ... Peabody College for Teachers, Nashville, Tenn.
C. J. POSEY, ... University of Minnesota, Minneapolis, Minn.
EDWIN J. SAUNDERS, ... University of Washington, Seattle, Wash.
ROBERT DeC. WARD, ... Harvard University, Cambridge, Mass.
RAY HUGHES WHITBECK, ... University of Wisconsin, Madison, Wis.
Contributing Editor for China, WALTER N. LACY, . . . Anglo-Chinese College, Foochow, China
Contributing Editor for Great Britain, GEORGE G. CHISHOLM, University of Edinburgh, Scotland

SUBSCRIPTION TERMS

The subscription price is one dollar a year, payable in advance. The price of a single copy is 15 cents.

The *Journal of Geography* is the official organ of the National Council of Geography Teachers and it is sent to all members of the organization. The annual dues, $1.00, are payable to the American Geographical Society.

The *Journal of Geography* is also sent to teachers who are Fellows of the Society. Annual dues are $10.00.

The *Journal of Geography* and the *Geographical Review* may be obtained by teachers at the combination price of $5.00 a year.

Remittances should be made payable to the American Geographical Society. Notification of change of address should be made promptly, both the new and the old addresses being given.

Published Monthly except June, July, and August

BY

THE AMERICAN GEOGRAPHICAL SOCIETY

BROADWAY AT 156th STREET

NEW YORK, N. Y.

Entered as second-class matter January 15, 1919, at the Post Office at New York, N. Y., under the Act of March 3, 1879

Vol. 19, No. 1 Press of Douglas Taylor & Co., New York January, 1920

THE JOURNAL OF GEOGRAPHY

A MAGAZINE FOR TEACHERS

Editor

GEORGE J. MILLER

State Normal School, Mankato, Minn.

Associate Editors

R. H. WHITBECK, University of Wisconsin, Madison

JAMES F. CHAMBERLAIN, Extension Division, University of California, Pasadena, California

R. M. BROWN, Rhode Island College of Education, Providence

A. E. PARKINS, George Peabody College for Teachers, Nashville, Tennessee

Business Manager

GEORG THORNE-THOMSEN

SUBSCRIPTION TERMS

The *Journal of Geography* is published monthly except June, July, and August.

The subscription price is $2.00 a year, payable in advance; the price of single copies is 25 cents. Orders for less than a half year will be charged at single-copy rate.

Postage is prepaid by the publishers on all orders from the United States, Mexico, Cuba, Porto Rico, Panama Canal Zone, Republic of Panama, Hawaiian Islands, Philippine Islands, Guam, Samoan Islands, Shanghai.

Postage is charged extra as follows: For Canada, 30 cents on annual subscriptions (total $2.30), on single copies 3 cents (total 28 cents); for all other countries in the Postal Union, 52 cents on annual subscriptions (total $2.52), on single copies 6 cents (total 31 cents).

The *Journal* is the official organ of the National Council of Geography Teachers and is sent to all members of the organization. The annual dues, $1.50, are payable to the *Business Manager*. Extra postage rates for copies sent to foreign countries should be added to the membership dues.

Patrons are requested to make all remittances payable to the *Business Manager*, in postal or express money orders or bank drafts.

It is assumed that members and subscribers wish to continue receiving the *Journal*. However, remittances must be sent promptly to assure your volume being complete.

Send manuscript and books for notice or review to the editor.

Send orders for back numbers to May, 1920 inclusive to the editor.

Published monthly except June, July, and August

BY

A. J. NYSTROM AND COMPANY

PUBLICATION OFFICE, 450 AHNAIP STREET, MENASHA, WIS.

GENERAL OFFICES, 2249 CALUMET AVENUE, CHICAGO, ILLINOIS

Application has been made for entry as second-class matter at the postoffice at Menasha, Wis.

379690

CONTENTS OF VOLUME XIX, 1920

JANUARY

		Page
The New Boundaries of Austria		1
Capital Cities	F. Homburg	8
Use of the Land (of the United States)		16
Finding Farms for Returned Soldiers	Ona I. Nolan	17
Block Diagrams	A. K. Lobeck	24
Current Opinions on the Function of Geography		33
The British Coal Trade		37
Illustrative Material on Forests and Forestry in the United States		38
Geographical Publications		
Shore Processes and Shoreline Development		39
The Superb Position of New York City as a Center for Physiographic Study		40

FEBRUARY

Suggestions for Study of Latin America Based upon Our Trade Relations	E. Curt Walther	41
Spitsbergen and the Rise of the Arctic		56
Problem Teaching: How to Plan It	Ruby Minor	61
The National Council of Geography Teachers	George J. Miller	69
Report of the Proceedings of the Annual Meeting of the National Council of Geography Teachers		75
A Further Note on Capital Cities: Edinburgh; Calcutta		77
Mineral Wealth of the United States		78
Amos W. Farnham	Emanuel M. Clark	79
Geographical Publications		
Training for Foreign Trade		80
List of References on the Project Method in Education		80

MARCH

Cotton and Human Affairs	George M. McBride	81
Geography and the War	Albert P. Brigham	89
Teaching the Geography of the Balkans		103
Notes from the Classroom: Suggestive Ways of Teaching Place Geography	Fred K. Branom	113
Meeting of the Wisconsin Normal School Teachers of Geography, Madison, January 23, 1920	R. H. Whitbeck	115
Geographical Items from the Colleges	R. H. Whitbeck	117
The Obituary of a Notable Tree		118
Geographical Publications		
The World's Food Resources		118
Geography of France		119
Ireland the Outpost		120
Outline Map of the United States		120

APRIL

Beet Sugar Production in Nebraska	Esther S. Anderson	121
The Teaching of the Geography of a Small Area	A. E. Parkins	130
The Problem of Turkey		141
A Study in Home Geography	Breta W. Childs	154
Geographical Publications		
The Project Method in Education		159

THE CONTENTS

MAY

Prize Essays Competition 161
The Iberian Peninsula: A Geographical Study Adapted to Fifth or Sixth Grade Pupils
H. W. Fairbanks 165
Fifth Grade Geography Textbooks: A Criticism ..... Robert M. Brown 172
Tibet: A Geographical Essay for Teachers ..... Nellie B. Allen 185
The Salt River Irrigation Project: A Study Outline ..... Zoe A. Thralls 198
Geographical Publications
The New Europe 201
Summer Session Courses 202

SEPTEMBER

The Journal of Geography ..... George J. Miller 205
Geography at Cambridge University, England ..... W. M. Davis 207
Status of Geography in the Normal Schools of the Middle States ..... Clyde E. Cooper 211
Through the Panama Canal ..... Ray H. Whitbeck 223
The Problem Method of Teaching Geography ..... Mendel E. Branom 233
National Council Meeting 243
Geographical Publications 243

OCTOBER

A Proposal for Renaming the Solar Circles ..... Zonia Baber 245
How Shall We Teach Geography? ..... Helen Goss Thomas 250
The Rivalry Between Sugar Beets and Sugar Cane ..... Ellsworth Huntington 255
A Criticism of the Presentation of an Industry in the Present Type of Geography Textbook, with Special Reference to the Cotton Industry ..... W. R. McConnell 260
Changes in the Rubber World ..... W. O. Blanchard 267
Geography in the Secondary Schools ..... James F. Chamberlain 272
A Lesson on Brazil ..... Annie Weller 275
The Cattle Industry in Brazil ..... Zoe A. Thralls 278
Geographical Publications 281

NOVEMBER

Geographic Influences in the Settlement of Black Prairie in Texas .. Harriet Smith 287
A Course in Geography for Normal Schools ..... Bessie L. Ashton 295
Power and Iron in France 309
The Geography of a Country ..... E. E. Lackey 315
The New Boundaries of Bulgaria 323
Annual Meeting of the National Council of Geography Teachers 326

DECEMBER

Catamarca: The Arizona of Argentina ..... Jehiel Davis 327
Man and His Work ..... Anne Devany 336
Road Improvements at Foochow, China ..... Walter N. Lacey 343
Island Life ..... F. Homburg 349
Geographical Publications 356

The JOURNAL *of* GEOGRAPHY

VOLUME XIX JANUARY, 1920 NUMBER 1

THE NEW BOUNDARIES OF AUSTRIA

Before the war Austria-Hungary was the second largest state of Europe. With the imperial province of Bosnia-Herzegovina, annexed in 1908, the area included was in round numbers 260,000 square miles and the population 51,000,000. Today the Empire of the Hapsburgs is disintegrated into several independent states. Austria and Hungary are shrunken to small countries. With Czecho-Slovakia they have been formed within the limits of the former Empire. Other portions of it have gone to already existing countries—Italy and Rumania. Part goes to the building of the resuscitated Poland and part to the formation of another new state, Yugo-Slavia—officially designed the Kingdom of the Serbs, Croats and Slovenes.

AUSTRIA-HUNGARY, THE POLYGLOT EMPIRE

Nationality has been the principle determining this division of the "polyglot" Empire. Austria-Hungary was a hotchpotch of races occupying a region composed of no less varied natural units. Racial distribution here is largely in sympathy with the natural diversity. In part, too, it is the result of the situation of the region. Austria-Hungary occupied a central situation as a meeting point of the chief European races. It is very significant that the rivers of the Empire drain to the four seas—North, Baltic, Black, Adriatic. In the case of Austria to this diversity must be added the fact of the singularly scattered distribution of the territory of the state. The shape of the old Austria has been not inaptly compared with that of a pair of scissors. The handles are represented by the Alpine provinces and Bohemia, respectively, the blades by the Carpathian Foreland (Galicia and Bukovina) and Dalmatia.

Before the war the area of Austria, a little less than half that of the Empire, was 116,000 square miles; the population, a little more than half, was 28,500,000. The relation of the new Austria to its former state and to the Empire as a whole is seen on map, Fig. 1. The new boundaries and their significance will now be

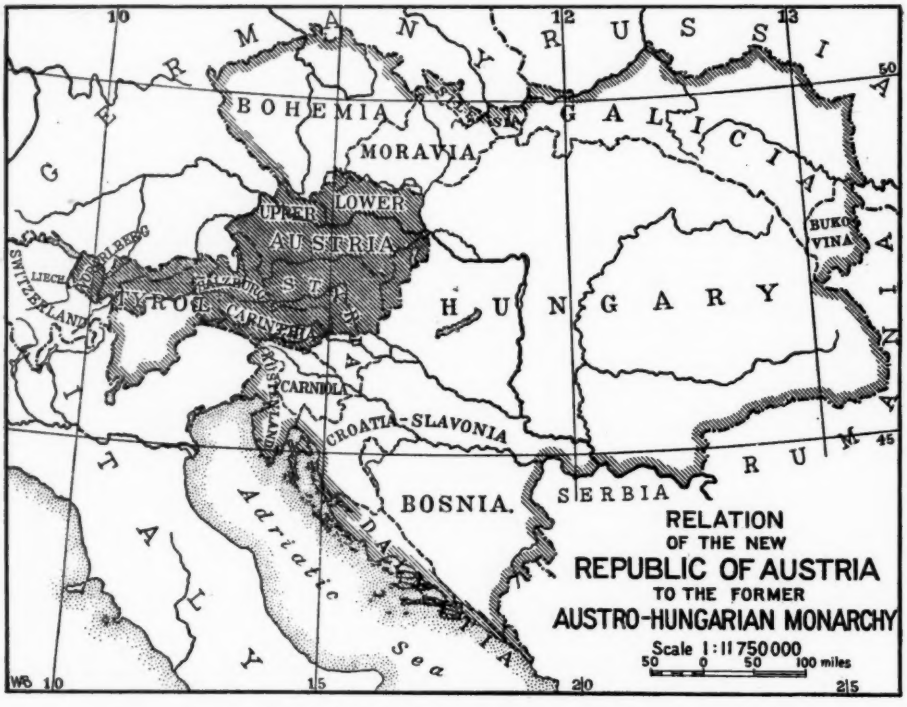


Fig. 1—The new Austria in relation to the former Austro-Hungarian Empire.

briefly described. The western boundary, i. e. that with Germany and Switzerland, remains unchanged.

The Boundary with Czecho-Slovakia

On the north Austria has lost the provinces of Bohemia, Moravia, and Austrian Silesia which go to the formation of the new state Czecho-Slovakia.[1] The new international boundary is practically coincident with the old provincial boundaries. It is thereby a historic boundary, for Bohemia, Moravia, and Silesia composed the lands of the old Bohemian Crown. In the main it follows an

[1] With the Czech lands of the three Austrian provinces is incorporated the contiguous territory of northern Hungary populated by the closely allied Slovaks.

ethnic line separating Czechs from Germans, but unfortunately some 3,500,000 Germans still remain in Czecho-Slovakia. For the most part this German population occupies the forested mountain rim of the north.

With the loss of the Czech provinces Austria loses not only a large German population, but the best part of her former territory. The mountain rim of the west and north is rich in coal and iron among other minerals, and it has long been the seat of textile industries. In the west and south are found the clay and quartz sands that gave rise to the famous Bohemian porcelain and glass wares. The important coal and iron fields of Teschen (eastern part of Austrian Silesia) have made decision on this area extremely difficult, as it is occupied by an intricately mixed population of Poles and Czechs. Large breweries and sugar factories bear witness to the agricultural development of the Czech lands. The great proportion of the former Austrian production of beet, two-thirds of the barley, one-half the rye, and a considerable share of the wheat, oats, and potatoes came from the three Czech provinces. The population is numerous and industrious and educationally the most advanced of the old Empire.

In Bohemia Austria had her second largest city, Prague (500,000). Prague is a good example of a naturally developed capital city (compare the article "Capital Cities" by F. Homburg in this number of the *Journal,* pp. 8-15). The ancient fortress town is centrally placed at the convergence of roads on the Bohemian plateau. The growth of industry has confirmed the excellence of the situation, and of recent years no Austrian town has made such progress in industry and trade as this old Bohemian center of tradition and learning.[2]

THE LOST CARPATHIAN LANDS: GALICIA AND BUKOVINA

Beyond the Moravian Gate rises the great arc of the Carpathians. The northern and eastern slopes and the Carpathian Foreland form the provinces of Galicia and Bukovina. These provinces face the great European plain. Westward the rivers drain to the Vistula, eastward to the Dniester—thus to the Baltic

[2] See the article "Overlooked Bohemia" by Eugene Van Cleef, *Journ. of Geogr.,* Vol. 14, 1915-16, pp. 39-42.

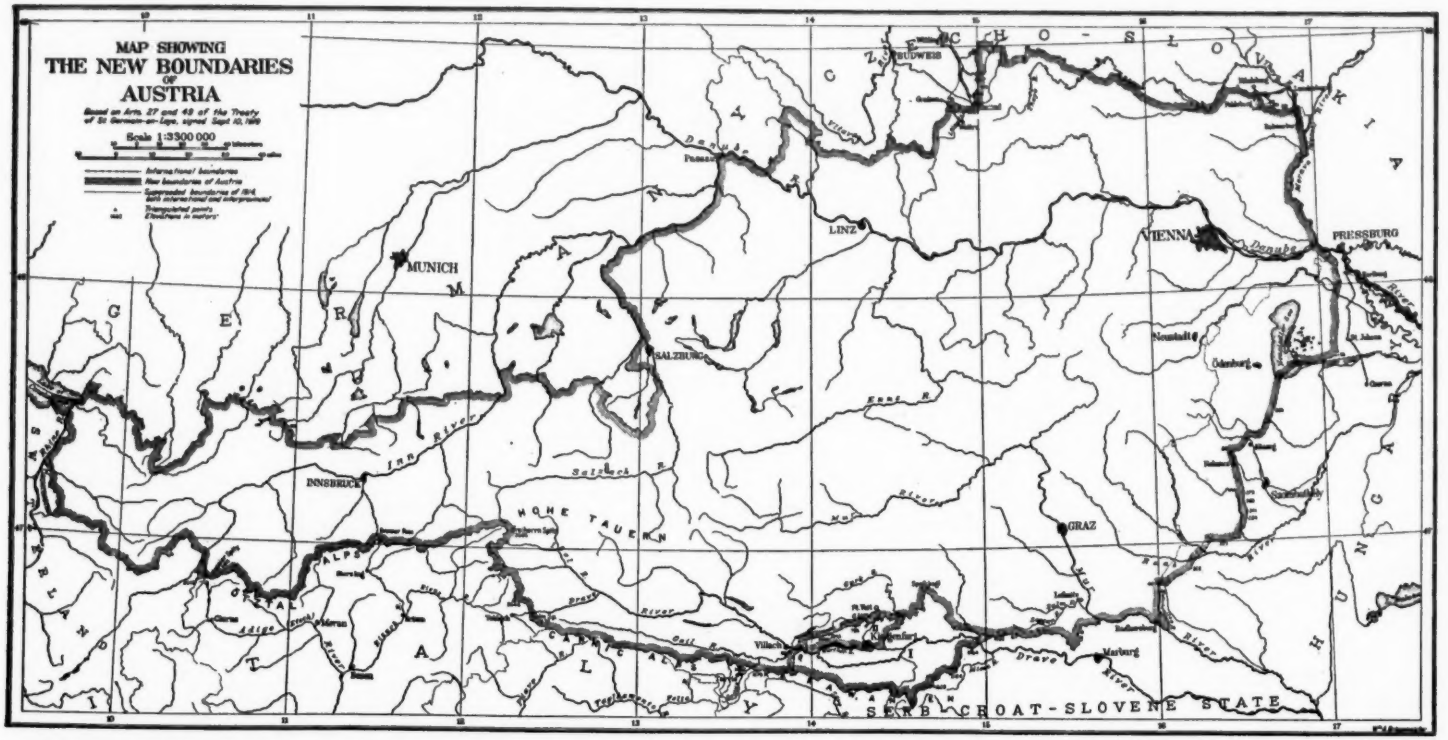


FIG. 2—Map showing the new boundaries of Austria and the Klagenfurt plebiscite area. The plebiscite area is divided into two zones. In zone I the vote will be taken within three months of the coming into force of the treaty. If the vote is in favor of Austria both zones go to Austria. If it is in favor of the Serb-Croat-Slovene state the plebiscite will be held in zone II three weeks from proclamation of the result in zone I.

This map of the new Austria should be studied in comparison with a detailed map of the old Austria. A valuable set of five maps in color showing (1) relief; (2) population density; (3) nationalities; (4) crops; (5) farm animals accompanies the article "The Peoples of Austria" by B. C. Wallis in the July, 1918, number of the *Geographical Review*.

and to the Black Sea. The western population, the upper Vistula basin, is solidly Polish; the eastern is Ruthenian[3] while the small province of Bukovinà is Rumanian. These provinces are predominantly agricultural, but they are also rich in mineral wealth. The zinc of Galicia supplied 40 per cent of the Austrian output; the salt mines of Cracow are of great antiquity and fame.[4] Further east oil is produced in a belt bordering the Carpathians and extending into Rumania. The fourth and fifth largest towns of the Austrian Empire are in Galicia, Lemberg (200,000) in the east and Cracow (170,000), the old Polish capital, in the west.

THE HUNGARIAN BOUNDARIES

In her new eastern frontier Austria gains a strip of territory from Hungary. The line is an ethnic boundary separating Germans from Magyars. Topographically, too, it is a well-marked line defining the easternmost extension of the Alps. Its wooded hills have not the fertility of the Hungarian plains; but Austria can look to her new acquisition for a certain amount of hay, fruit, and wine and she will also secure here some coal mines and sugar factories.

THE ITALIAN AND YUGO-SLAVIAN BOUNDARIES

On the south, Austria is shorn of the lands of Italian and South Slav population—part of the Tyrol, the whole of the Coastland (Küstenland), Dalmatia, Carniola, and part of Styria.

The southern Tyrol—the Trentino—is Italian in climate, productions, and population. The new boundary, however, here departs from the ethnic principle. For strategic reasons it has been drawn north of the boundary of Italian civilization. It follows the watershed between the Danubian drainage and that to the Adriatic. It cuts the Brenner pass connecting the valleys of the Inn and the Adige, the most important road across the eastern Alps. Some 250,000 Germans are thus included in Italy. Italy also gets Gorizia and Gradisca and the western portion of the Coastland including Trieste (see the note "Three 'Problem' Ports of Europe" in the May *Journal*, p. 193). Trieste ranks first in

[3] The Ruthenians belong to the Little Russians and like the other peoples of this group are members of the Greek Church, while the Poles are Catholics.

[4] The Salt Mines of Austria, Emily A. Budd, *Journ. of Geogr.*, Oct., 1916, pp. 58, 59.

commerce and third in population (250,000) among the former Austrian cities.

Dalmatia, where the Dinaric Alps drop sharply to the sea—a distance of 400 miles, goes to Yugo-Slavia, though Italy claims the islands and a fringe of mainland. The population, almost exclusively engaged in fishing or agriculture, is Serbo-Croat except in some of the coast towns, Zara and Spalato, for example, where there is a large Italian element.

To Yugo-Slavia also go Carniola and the southern part of Styria peopled by Slovenes. These are provinces of the Alpine Foreland. In Carniola are the mercury mines of Idria, with the Spanish mines of Almaden, the best-known in Europe. The capital, Laibach, is a center of communication and lies on the road to Italy. Between Carniola and Styria is the province of Carinthia. A small part of southern Carinthia is definitely included in Yugo-Slavia; while a larger section in the southeast, the Klagenfurt area, is to be decided by plebiscite. The town of Klagenfurt is German; in the surrounding districts Germans and Slovenes are mixed. The plebiscite area is divided in two. The southeastern part (1,730 square miles) votes first: if the decision should be for Austria, the whole will go to that country; if for Yugo-Slavia, the plebiscite will then be taken in the northwestern section (500 square miles).

THE REPUBLIC OF AUSTRIA

The "sorry fragments" thus remaining to Austria are Upper and Lower Austria, the Voralberg, the northern portion of the Tyrol, Salzburg, most of Carinthia, and the greater part of Styria. The new Austria, then, includes the larger part of the eastern Alps and the transition zone of the Danubian country lying between the Alps and the Bohemian block. Including the northwestern plebiscite area the total area is estimated at 30,700 square miles; that is, about the size of Maine or South Carolina. The population may be placed at approximately 6,500,000. The Alpine provinces include a large proportion of mountainous land extensively covered with forest (about one-third of these provinces is forest) and high pasture. The agricultural and pastoral pursuits resemble those of Switzerland, this resemblance being especially close

in the case of the Voralberg, the western extremity. The Voralberg forms part of the Upper Rhine basin, and in other respects its natural affinity is with Switzerland. Last May the population voted by a large majority for amalgamation with the Swiss Confederation, but Switzerland has appeared somewhat skeptical of the desirability of such an arrangement.

The new Austria retains a certain mineral wealth, chiefly in salt, brown coal, and iron, the first in Upper Austria, the two latter especially in Styria, though coal and iron both occur along the Alpine Foreland parallel with the Danube. In conjunction with the water power of the Wiener Wald they have given rise to a concentration of industry in Lower Austria, most densely peopled of the provinces.

VIENNA, CAPITAL CITY

Vienna has played a vastly important rôle among European cities. From the Roman foundation through the Middle Ages the city figured as a frontier fortress. In the sixteenth and seventeenth centuries it was the bulwark of Christendom against the Turk and was twice besieged, in 1530 and in 1683. After the retreat of the Turk Vienna began to enjoy the benefits of an excellent situation. Three great natural gates open on the Vienna Basin: the Austrian Gate, giving access to the open valley of the Upper Danube; the Moravian Gate, to German Silesia; the Hungarian Gate, to the Lower Danubian valley. To the roads threading these gates may be added those crossing the eastern Alps to Trieste and to Italy and through Bohemia by the Elbe gap into Saxony. The railroad map of Europe shows the capital importance of Vienna as a center of communications.

As a focus of varied natural regions, a place of meeting and exchange, Vienna has enjoyed other advantages favorable to the development of a great capital, though her prestige has been somewhat impaired by the growth of Budapest. The rivalry between the two capitals is indeed but one expression of the cause that has weakened the unifying influence that is the chief function of a national capital. This cause is the racial diversity and racial hatred in the old Empire. Twenty years ago the fear of its consequences was voiced by Partsch, "The more deeply marked the racial di-

vergences become, the more certainly will the fortunes of Vienna again undergo vicissitudes that will recall the former, not wholly obliterated condition as a border town." The fear has now been realized. Vienna is not only capital of a greatly diminished state; she is very eccentrically placed in regard to it. What effect these changes will have on one of the world's great cities remains to be seen. Austria at least has now the advantage of embracing a homogeneous population; the non-German element is insignificant.[5]

[5] J. Partsch: Central Europe, 1903, p. 212. On Vienna see also Vienna as a Type City, F. P. Gulliver, *Journ. of School Geogr.*, Vol. 4, 1900, pp. 175-179, and Vienna, Charles McMurry, *Journ. of Geogr.*, June, 1914.

CAPITAL CITIES

By F. HOMBURG
Woodward High School, Cincinnati

Cities that are seats of government constitute a peculiar class. In them the head of the state or the chief executive resides, and hence in a monarchy the capital city is the residence of the court. In a republic it is the meeting place of the legislature and hence becomes the goal of office seekers and the Mecca of lobbyists. Here the highest law courts hold their sessions, and here are stationed the heads of the various government departments and a host of officials and employees. Here are the headquarters of national defense, of army and navy. In the train of these institutions come others. The various religious denominations find it for their interest to be well represented at the capital, and church dignitaries make their residence here. Universities and schools, libraries and museums make the capital a seat of learning, and it becomes a desirable dwelling place.

The capital city, drawing in to itself these various intellectual and material advantages, thus becomes a center from which radiates a cultural and nationalizing influence equalled by no other. This is the distinctive function of the capital city. Let us now inquire into the geographic causes that create and maintain it.

ACCESSIBILITY

Accessibility is the first requisite of the capital city. The old saying "All roads lead to Rome" reflects the central location and accessibility of the capital of the ancient world. It is expected that a capital will be centrally situated—central, that is, with chief reference to distribution of population. We may take examples from our own state capitals. Where there is a general uniformity of surface with a generally even distribution of population and more or less equal transportation facilities, the capital tends to the center of the state, as Columbus, Ohio. In Nebraska or Kansas, where climatic conditions hold the mass of population in the east of the state, the capital is out of the geometrical center.[1]

CHANGES OF LOCATION THROUGH GROWTH OF THE COUNTRY

Here, however, we are confronted with an element of change. The center of population may shift position very much, especially in recently developed lands or where there is a general change of occupation as from agriculture to industry. The center of area, too, may be unstable; a country may acquire or lose territory.

During the wars of the Christian States in Spain against the infidels Valladolid, the capital of Castile, most powerful of these states, eventually became capital of the whole country. After the complete overthrow of the Moors and the acquisition of Granada, Valladolid was situated too far north. Since 1560, Madrid, near the geographic center of Spain, has been the capital. The kingdom of Sardinia, or Piedmont, in the middle of the last century was the most vigorous of the Italian states, so that at the time of the partial union of Italy its capital, Turin, naturally became the capital of the Italy of that day. When more territory was acquired the position of Turin proved too eccentric, and in 1864 the seat of government was transferred to Florence. It is interesting to look at the maps of the sixties and note these changes. Finally, when in 1870 the whole peninsula and all of the islands (except Corsica) were united under one government, Rome, because of its central position as well as because of tradition, was restored to its ancient place as capital.

[1] For a discussion of the location of political centers in the United States see W. S. Tower: The Geography of American Cities, *Bull. Amer. Geogr. Soc.*, Vol. 37, 1905, pp. 577-588.

TEMPORARY SHIFTS IN WAR TIME

The capital city of an important country is typically cosmopolitan. A great capital will not only have easy communication with the various parts of its own country; it will have good communications with other countries. The situation of Copenhagen between the Baltic and North Seas is a case in point. This feature, so advantageous in times of peace, may operate otherwise in time of war. And here we may note the case of Belgrade so eccentrically placed on the northern frontier of Serbia.

From remote periods it has always been the object of military campaigns to capture the enemy's capital, the heart of organization. If the situation grows serious the capital of the threatened country may be changed. Thus in 1865, when the Federal forces were closing in on Richmond, the Confederate authorities ordered the transfer of the government archives to Danville, on the North Carolina border, intending to make that town the Confederate capital; but the order came too late. In 1870, when Paris was invested, the seat of government was transferred to Tours; and again in 1914, when another siege of Paris seemed imminent, Bordeaux was made the capital. In the late war, also, when Petrograd was threatened, Moscow came into its own again, as the Russian capital; and, when Bucharest was taken, Jassy, close to the Russian border, became the Rumanian capital. Perhaps the most anomalous case was that of Belgium with the seat of government transferred to Havre. But, though archives and officials may be removed, much that goes to the making of a capital city is immovable, and the moral effect of its capture is proof of the influence of such a city in the country's life.

FORTIFICATION

Hence arises the question of fortification of the capital city. Many ancient capitals, as of course other ancient cities, enjoyed the advantages of natural defense in their site: ancient Paris, for example, on an island of the Seine; ancient Rome on her seven hills. Modern cities are usually strongly fortified, especially if their situation be exposed. Paris is an enormous military camp, and advantage has been taken of the unique natural defenses in the Paris Basin for the protection of the city.[2]

[2] D. W. Johnson: Topography and Strategy of the War, New York, 1917, pp. 2-10.

POLITICAL IMPORTANCE AS A FACTOR IN GROWTH

A capital city grows in virtue of its political importance, but other factors enter in whose relative importance it is difficult to estimate. On the site of Washington, at the "fall line" and head of navigation of the Potomac, a town would undoubtedly have sprung up but, had it not been a capital, we may be sure it would not have had the population, beauty, or influence that Washington has. The site of Paris is inevitably that of a great town, and Paris is naturally placed as the capital of modern France; but it is interesting to speculate on the consequences had Hugh Capet at the end of the tenth century selected as his capital not Paris, but the more centrally situated Orleans. The phenomenal growth of Berlin after it became capital of the German Empire, the expansion of Buda-Pest after 1866, the increase in size and beauty of modern Rome since it became head of united Italy are due to their political status.

Usually the features of site and situation[3] that make for the selection of a political center also make for other factors that promote growth, and the greatest capital cities show this. A more detailed discussion of some of these cities will best illustrate this and the other features that we have mentioned.

ROME, THE ETERNAL CITY

No city appeals so strongly to the imagination as that capital of all capitals, the Eternal City, Rome. Rome owes much of its greatness to geographical causes. As has already been remarked, the volcanic hills afforded positions of natural defense. Below stretched the broad, fertile plain of Latium. The site marked a crossing place on the Tiber, which was then a much more navigable river than it now is. As regards situation Rome was center of the civilized Old World. No such cosmopolitan capital has ever existed. Administration and commerce as a matter of course drew many people thither; but in addition there were many attractions for others, which increased with the city's growth as a center of luxury. The emperors, having continued to support the mob by free distribution of grain, had also to assume the burden of its entertainment. The cry of "bread and games" attracted adventurers and fortune seekers from all parts of the Empire. The

[3] *Site* is concerned with local conditions; *situation* with relations further afield.

dominance of Rome in the ancient world is reflected in the vast significance that attached to Roman citizenship and in the extent to which the imperial city figured as a model for provincial towns. Her fine streets, her forum, theatres, and baths were imitated everywhere; so too her Circus Maximus with its races and her Coliseum with its games.

Various forces made for the disruption of the Empire with its long stretch from west to east. The division of government with creation of an eastern capital, Constantinople, was the beginning of a permanent division, in which as the old western capital declined the sun of the new eastern capital rose.

CONSTANTINOPLE: AT THE CROSSWAYS OF THE OLD WORLD

When Rome was ravaged by the barbarian hordes of the north the role of conservator of the ancient civilization fell upon the city of the Bosporus. Constantinople is remarkably placed both as regards site and situation. The Golden Horn affords an extensive, deep-water harbor commanding the crossing point of two of the world's great highways, the north-south seaway from the Black Sea to the Mediterranean and the land route from Europe to Asia whose latest phase has become famous as the "Berlin to Bagdad" route. For centuries Constantinople figured as the capital city of the world, a London and a Paris in one, the center of commerce and of culture. Its commercial importance, due to its exceptional position, was not diminished by the rise of the Saracens. After their early fanaticism had been spent Constantinople continued to be the point where products of the East were exchanged for those of the West, and as an emporium it flourished down to the time of the Crusades when Venice took over much of the Eastern trade. After its conquest by the Turks in 1453 the city on the Bosporus became the capital of another Empire and, despite centuries of Turkish misrule, has remained one of the great cities of the world. What will be its fate after the conclusion of peace is still to be seen, but nothing can rob the city of its immense natural advantages.

PARIS: A CAPITAL CITY PAR EXCELLENCE

Of modern capitals none show so markedly the concentration of political power and cultural influence as Paris. So pronounced

is this concentration that it has tended to thwart the growth of other cities in France. This effect is seen in the retarded development of towns within 60 to 90 mile radius, the maritime ports excepted. Troyes, Rheims, Amiens and other towns which formerly figured as capitals are in a condition of relative stagnation. Against this concentration there is now on foot a movement towards decentralization under which the regional divisions and their regional capitals will be more free to follow the natural lines of growth.[4]

Paris well illustrates the principle that a capital city should be accessible. The Paris Basin is a place of convergence for natural roads not only from the several regions of France but from farther afield. Here meet roads from the Mediterranean, from the highland zone of central Europe, from the north German plain and thus through European Russia from Asia, from Britain, and from Brittany and the West. It is this position as a meeting place for peoples and ideas that has given Paris its surpassing importance as a center of cultural influence.

Berlin as a capital is in sharp contrast with Paris. The north German plain, naturally a poor and unattractive region, is rather a passageway than a meeting place, and even so the position of Berlin is eccentric. Especially now, with the re-establishment of Poland and the pushing westward of Germany's eastern boundary, is the eccentric position of Berlin emphasized and its character as a strategic and military center apparent. Berlin lacks the cultural heritage of Paris or of some of the old German cities such as Leipzig. It has failed to fill the function of a true capital—the centralizing of national life.

PETROGRAD AND MOSCOW

If Berlin is an artificial creation as a capital still more so is Petrograd. Petrograd, however, was founded with a different aim in mind. Peter the Great well knew what the influence of a capital means. He wished to introduce the civilization of western Europe into his vast domain and he replaced Moscow, the ancient capital, with the foundation of St. Petersburg in the marshy tract at the head of the Gulf of Finland. The site was unattractive, but there

4 De Martonne: The Real France, *Journ. of Geography*, March, 1919.

were advantages of situation. So, in spite of the marshy ground, the inundations, the barren surroundings, the damp, unhealthy climate, and the long ice blockade of winter the new capital grew and it grew, moreover, as a west European city. Petrograd is situated on the easternmost extension of the Baltic Sea, at the mouth of the Neva, the short, deep outlet of Russia's great lakes. It is not far from the Russian watershed, the Valdai Hills, from which the most important Russian streams radiate and whence also canal communication is easy. Thus Petrograd became the first commercial port of Russia.

Business and government brought together a very mixed population, not only from all parts of European and Asiatic Russia—which is a realm of many distinct peoples and languages—but from other countries as well. Petrograd, with a population more cosmopolitan than characteristically Russian, has exerted a cultural influence, as was intended by its founder, but hardly a nationalizing one. This is strongly felt by the Russian people themselves, and their feeling finds expression in the popular saying that while Petrograd was the head of Russia, the ancient capital, Moscow, was its heart. Moscow is the greatest commercial center of the interior. It is well placed as regards waterways, and, as anciently the roads, modernly the railways converge towards the city. With its memories dear to every patriotic Russian, with its ancient heritages and institutions, the nationalizing influence of Moscow far exceeds that of Petrograd.

Some Capitals of the New World

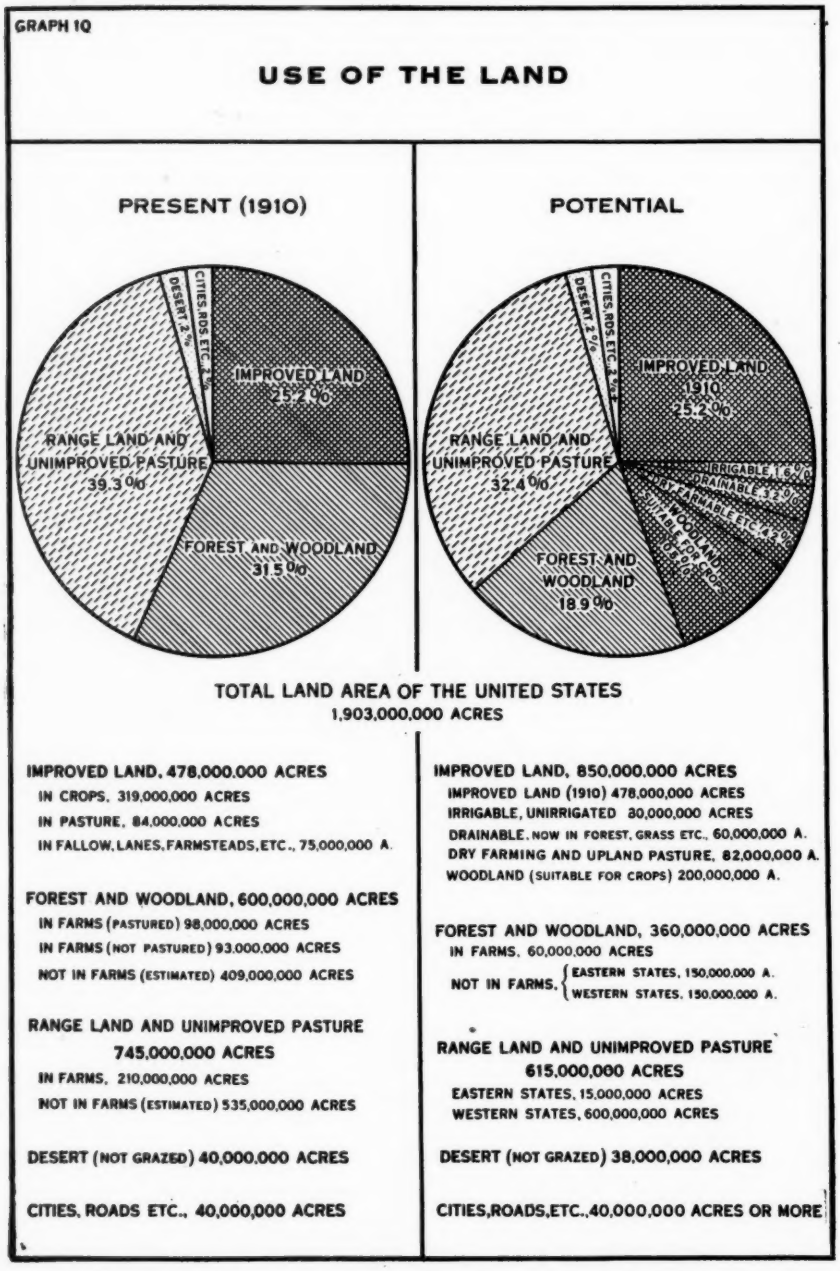
Of the capitals of the New World republics one of the most interesting is that of Brazil. As capital of the largest South American state the situation of Rio de Janeiro on the eastern coast is very eccentric so far as area is concerned, but the coastal region has been longest settled and is most populous. Roads and railroads, however, are beginning to open up the vast interior, and Brazil's interests in her remote boundary regions must be other than political. With such development the eccentric position of Rio will become more apparent. Rio, however, presents many advantages as a capital. The site is one of almost unrivaled beauty. The foundation is comparatively old, and the city can

show a full share of fine buildings, beautiful churches, and interesting museums, while among educational features is the world-renowned botanical garden. The magnificent harbor and its central location on the Brazilian seaboard have made Rio a great commercial center, and, since yellow fever has been eliminated, the city has had unhampered opportunities as a port.

The positions of Montevideo, the Uruguayan capital, and Buenos Aires, the Argentine capital, are similarly eccentric, and the same is true of our own capital. In all these countries there have been proposals and even efforts to change the location of the capital. In our own country Chicago has had hopes of superseding Washington, and some persons see in St. Louis the future capital because of its nearness to the center of population and its more central areal position. In contrast with European countries expansion in these countries of the New World has been very recent, and it may well be that readjustments must be made.

THE CAPITAL OF THE AUSTRALIAN COMMONWEALTH

When on January 1, 1901, the six independent colonies of the Island Continent, with discordant interests and mutual jealousies, were united in one federation the question of a federal capital came up. To avoid irritation none of the state capitals was selected, but choice was finally made of a site, Canberra, in the southeastern corner of New South Wales. The position, of course, is eccentric to the area of the continent, but, as in the case of the American colonies, settlement began on the seaboard. The east, more especially the southeast, is the densely populated part of the continent; and in the case of Australia one cannot look for extensive development in the arid lands of the interior.


GRAPH 10
USE OF THE LAND
PRESENT (1910)
POTENTIAL
IMPROVED LAND 25.2%
RANGE LAND AND UNIMPROVED PASTURE 39.3%
FOREST AND WOODLAND 31.5%
DESERT 2%
CITIES, RDS. ETC. 2%
IMPROVED LAND 1910 25.2%
RANGE LAND AND UNIMPROVED PASTURE 32.4%
FOREST AND WOODLAND 18.9%
IRRIGABLE 1.6%
DRAINABLE 3.2%
DRY FARMABLE ETC. 4.3%
WOODLAND SUITABLE FOR CROPS 10.5%
TOTAL LAND AREA OF THE UNITED STATES
1,903,000,000 ACRES
IMPROVED LAND, 478,000,000 ACRES
IN CROPS, 319,000,000 ACRES
IN PASTURE, 84,000,000 ACRES
IN FALLOW, LANES, FARMSTEADS, ETC., 75,000,000 A.
FOREST AND WOODLAND, 600,000,000 ACRES
IN FARMS (PASTURED) 98,000,000 ACRES
IN FARMS (NOT PASTURED) 93,000,000 ACRES
NOT IN FARMS (ESTIMATED) 409,000,000 ACRES
RANGE LAND AND UNIMPROVED PASTURE
745,000,000 ACRES
IN FARMS, 210,000,000 ACRES
NOT IN FARMS (ESTIMATED) 535,000,000 ACRES
DESERT (NOT GRAZED) 40,000,000 ACRES
CITIES, ROADS ETC., 40,000,000 ACRES
IMPROVED LAND, 850,000,000 ACRES
IMPROVED LAND (1910) 478,000,000 ACRES
IRRIGABLE, UNIRRIGATED 80,000,000 ACRES
DRAINABLE, NOW IN FOREST, GRASS ETC., 60,000,000 A.
DRY FARMING AND UPLAND PASTURE, 82,000,000 A.
WOODLAND (SUITABLE FOR CROPS) 200,000,000 A.
FOREST AND WOODLAND, 360,000,000 ACRES
IN FARMS, 60,000,000 ACRES
NOT IN FARMS, EASTERN STATES, 150,000,000 A.
WESTERN STATES, 150,000,000 A.
RANGE LAND AND UNIMPROVED PASTURE
615,000,000 ACRES
EASTERN STATES, 15,000,000 ACRES
WESTERN STATES, 600,000,000 ACRES
DESERT (NOT GRAZED) 38,000,000 ACRES
CITIES, ROADS, ETC., 40,000,000 ACRES OR MORE

Graphic representation of present and potential use of the land of the United States. This plate (X) is reproduced from the pamphlet "Arable Land in the United States" by O. E. Baker and H. M. Strong (Department of Agriculture, Washington, D. C.). A suggested use of the pamphlet in schools is given in the following article by Ona I. Nolan.

FINDING FARMS FOR RETURNED SOLDIERS

AN ILLUSTRATION OF THE USE THAT MAY BE MADE OF GOVERNMENT PUBLICATIONS*

By ONA I. NOLAN
Emerson School, East Boston, Mass.

In the progress of one of our daily socialized recitations in geography, while my eighth grade class was interested in studying the conservation and development of our natural resources, one of the boys brought in the following newspaper clipping:

80,000 SOLDIERS HAVE ASKED FOR FARM LANDS

WASHINGTON, June 18—More than 80,000 soldiers, many of them still over-seas, have notified Sec. Lane of their desire to obtain farms under the plan now being considered by the House Public Lands Committee, according to Mr. Lane, who was unable to appear before the committee today.

and submitted it to his classmates for discussion.

They immediately confronted him with the question: "Where and how are 80,000 farms to be secured in the United States for these soldiers?"

After contributing a few ideas to the general discussion, which was the best he could do on the spur of the moment, the boy turned for help to the girl pupil teacher, who happened to be conducting the lesson on that day. At once a committee of five was appointed to study the problem, obtain all possible information, and present it at the meeting of the class on the following day.

A Field for Thought

The impromptu discussion that followed the presentation of the clipping had opened up a field of thought for these enthusiastic workers to explore. No need for the pupil teacher to mention the home assignment for the class that night; they were already determined to find 80,000 farms somewhere in the United States for those soldiers.

During the supervised study period which followed, all members of the class were busy in little groups of twos or threes in trying to solve this vital problem which had suddenly confronted

* Copyrighted 1920 by the author.

them out of their own needs, as do all our problems in our work in geography. They dug into textbooks, explored the reference books on my library shelves, pored over the pamphlets and booklets on my study table, which are always for their use, and examined every map they could find, especially the surface maps and rainfall maps, for they are beginning to realize that the maps speak a language all their own, if it can be understood.

A LIVE TOPIC

In the course of the next few days, while they were bent on solving their problem, the class discussions were very interesting. To begin with, they were awake to the need of conservation and development of our land resources, for had they not all worked splendidly that year on their own school gardens? Did we not have a glorious enrollment in the United States School Garden Army? Had not Peter, from that very class, been awarded the distinction of having the finest home garden in the entire district? Had they not realized all that spring from their use of books published by the United States Food Administration on "Food Saving and Sharing," how the United States had been called upon to supply a great part of the food for the world during the war? Were they not keenly alive to the fact that the vast Middle West was a great source of food for their manufacturing center of Boston and all New England, as well as for foreign manufacturing nations and nations that were non-productive on account of war?

Did they not know how many food products had been shipped out on the boats from the piers in East Boston and Charlestown and the great Commonwealth Pier at South Boston? Did they not realize how high were the prices of bread and meat and other foodstuffs, and how earnestly all had been called upon to bend every effort to increase production and develop our resources? Had we not correlated our geography discussions with our history and traced the growth and development of the farm lands of our great West by the great stream of immigration, and hadn't many of the children relatives among the sturdy immigrants who had pressed westward and left behind the millions of their countrymen huddled in our great eastern cities? Wasn't it worth while to see if they could find 80,000 farms for these soldiers of whom

they were so proud, as they stood at the schoolroom window and watched the returning transports bringing thousands safely home into Boston harbor?

With these ideas in their minds as a part of their background from previous discussions, they went to work with a will to solve this problem.

Of the many reference materials to which they turned I think perhaps they secured most help from a recent publication of the Department of Agriculture:

Arable Land in the United States, by O. E. Baker and H. M. Strong. *Separate from the Yearbook of the Department of Agriculture, 1918, No. 771,* Washington, D. C.[1]

The story is told by a series of ten plates accompanied by explanatory text. The plates show for the United States:

I. Percentage of the total area classed as improved farm land (arable land), 1910.
II. Land not in farms, 1910.
III. Topography of the United States. Photograph from a relief model.
IV. Average annual precipitation.
V. Average length of the growing season (between killing frosts).
VI. Forest and woodland area.
VII. Approximate extent of forest and cut-over land and woodland which could be used for production of crops after clearing.
VIII. Swamps and other wet lands susceptible of drainage.
IX. Irrigated areas in the Western States.
X. Use of the land, present and potential (*see* p. 16).

LAND ALREADY IN FARMS

This I gave to the members of the special committee when they turned to me for assistance, and, when they found from their dictionaries that "arable land" meant "land fit for plowing and therefore for agriculture," they renewed their energies, for they felt that they were on the right track to secure those 80,000 farms. From this publication they found the location and extent (1) of the land already in farms, (2) the land that probably never could be in farms, and (3) the land that at some time might be used for farms.

By cutting out and mounting Plate I and passing it around for their classmates to examine, they readily saw that portion of the

[1]This pamphlet can be obtained *gratis* from the Department so long as the supply lasts.

United States where the land was already occupied by farms. One of the boys made a large wall chart similar to Plate I for the whole class to keep in sight.

From the comparison of Plate I (Improved farm land) with their relief maps of the United States and from the references to their textbooks, they brought out and discussed the various reasons why the North Central Plains of the United States has the most farms.

They discussed the richness of the soil, the well-watered land, the ample rainfall, the good growing season between killing frosts, and the warm summers for ripening the crops.

Recalling these advantages, they realized why this region of farms produces such abundant crops: why an area of one-fifth of the United States (a rough triangle based about the 100th meridian from Oklahoma to North Dakota and with its apex in southwestern Pennsylvania) produces four-fifths of the corn, three-quarters of the wheat and oats, and three-fifths of the hay. From their discussion they concluded that the farm lands of this region were already under cultivation and saw no opening for 80,000 new farms to be used by returning soldiers.

Possibilities of Lofty and Arid Regions

Turning to another copy of the same pamphlet and cutting out Plates II (Land not in farms) and III (Relief) and mounting them on the same sheet, the committee gave all members of the class an excellent opportunity to realize why the land in the Rocky Mountain and Appalachian Mountain regions is not in farms. In their discussions they realized that much of this region—amounting to about one-fifth of our total area—could not be in farms, because the surface is too rough and stony for plowing and farming, as Plate III clearly indicated to them.

When some of the speakers were further challenged they made the additional point that much of this region could not be in farms for the rainfall was not sufficient for profitable production of crops, the requirements of which, they found from the pamphlet, range from 12 or 15 inches a year in Montana to 25 inches in the lower Rio Grande Valley of Texas. The use of Plate IV (Rainfall) and their own rainfall maps proved to them that the rainfall

of many portions of this mountainous west—perhaps one-third of the land area of the United States—is not enough for crop raising without irrigation.

They concluded from their discussions that grazing might be profitable in these regions, but they saw little chance to make 80,000 farms for the soldiers in a land where the surface is so rough and hilly; where there is so little rainfall, and where much of the soil is far from fertile. In addition to these disadvantages Plate V (Average length of the growing season) showed unfavorable temperature conditions in the lofty regions.

CLEARING FORESTED REGIONS

The next section in the pamphlet they found marked "Potentially Arable Land" (page 5). Upon consulting their dictionaries and finding that this meant land that possibly might be used for farming, they began to think they were on the right track.

Plate VI (Forest and woodland) was examined with interest when it was suggested that some of this land could be used for crops after clearing. Then the children turned eagerly to the next plate (VII) on which they saw that those forested regions, good for possible farms, had been charted already by the government; and keen interest was aroused when some of the children explained that much of this forest land in Michigan and Wisconsin is being made into farms. But their enthusiasm was sobered when some wide-awake boys made them realize what a long, slow, and laborious process was this attempt at converting forest land into farm land.

By showing several pictures of forest regions that were being cleared, and by recalling the stories from their readers and histories of the lives and experiences of many of the pioneer settlers in penetrating the forests of the great West, they decided that it meant many years of hard work and much suffering if the soldiers had to reclaim these forest lands without government assistance.

DRAINING SWAMP LANDS

The committee explained that, although the first chance for the best farms seemed to be from the clearing of forest lands, the government pamphlet told them of swamp lands that might be drained and reclaimed for farms.

When Plate VIII (Swamp and other wet lands) was passed about for them to examine and compare with the maps in their textbooks, they saw with some surprise the large areas of swamp lands in the Mississippi Valley, in the Southern Coastal Plain, and in the states near the Great Lakes. Then they looked at pictures of great swamps and the prospect seemed rather discouraging. They decided that draining those vast swamps would cost so much and take so long that most of them rather favored the first suggestion of clearing the forest lands, as being quicker and cheaper and less laborious.

IRRIGATED LANDS.

The third possibility of making these 80,000 farms from irrigated lands, as shown when Plate IX (Irrigated areas in the Western States) was passed around to them, appealed to the children as one of the best chances of the three. The member of the committee, whose duty it was to make a special report on this third possibility—that of irrigated land—proved a strong advocate for his cause and influenced many of his classmates to his way of thinking.

They were especially ardent believers in the possibilities of irrigation because of their acquaintance by correspondence with many boys and girls of Boise, Idaho, who had written the most interesting letters about the wonderful irrigation project of the Boise region.

During the previous school term I had received a letter from a teacher in Boise, asking if we would like to write letters to her boys and girls. Needless to say my classes were delighted to write to their new friends and tell them all about Boston. We received in reply letters in which the children of Boise told us all about the great Arrow Rock Dam, constructed by the United States Government, and sent us many pictures of it and of the irrigation canals.

We were fascinated by the pictures and descriptions of the great irrigation project around Boise and learned so much about their reservoirs and dams and canals and ditches that we were able to understand how they could raise their great crops of alfalfa and how wonderful their fruit orchards proved to be.

Finally some of the children mentioned the project of using

some of the "abandoned hilly farms" of the eastern states and the possibilities there might be in "dry farming,"' but they did not sway the favor of the majority away from the idea of irrigation, or of reclaimed forest lands.

After the committee had presented their ideas and pictured the possibilities, and much discussion and challenging of ideas had ensued from the members of the class, the pupil teacher put the question to vote.

So real had the subject of irrigation become to them from those letters, and so strong an advocate of the irrigation possibility was the committee member who presented it, that the majority of these junior citizens cast their votes in favor of the proposition of irrigated land for these 80,000 farms for the soldiers, although many of them were inclined to agree with the writers of the government publication that the forest lands would provide more farms in the future than any other means. They realized that all three possibilities of cleared forest lands, reclaimed swamp lands, and irrigated lands were open for consideration.

VALUE OF THIS STUDY

The pupils had been confronted by a real problem of their own making, growing out of their own needs and solved by the utilizing of every means at their command.

During their investigation and individual research in solving this problem, and especially in their class discussions of it, they had all been wide awake to the problem, genuinely interested in it and alive to the needs of it, and had at least developed independent thinking and initiative in finding and using and applying reference material.

In judging and evaluating the efforts of their classmates who took part in the discussion they had shown a very democratic spirit—a spirit which seemed a safe foundation for their junior citizenship—in trying to solve a problem for their 80,000 brothers who had proved their senior citizenship in the common service.

SOME OF THE ADDITIONAL MATERIAL CONSULTED BY THE CHILDREN

Textbooks: Tarr & McMurry: New Geographies, Book II, The Macmillan Co., New York.
Brigham & McFarlane: Essentials of Geography, Book II, American Book Co., New York, 1916.

Reference Works: Yearbook of the United States Dept. of Agriculture, 1918.
Thirteenth Census of the United States.

Booklets: "Harvest Scenes of the World," Rand McNally & Co., Chicago, 1913, 50 cents.
J. B. Beadle: Progress In Reclamation of Arid Lands in the Western United States, Smithsonian Inst., Washington, D. C., 1916.

Maps: Relief Map of the United States. (Philips' Comparative Wall Maps.)
Forest Map of the United States. (Philips' Comparative Wall Maps.)
Economic Map of the United States. (Philips' Comparative Wall Maps.)
Rainfall Map of the United States. (Philips' Comparative Wall Maps.)
Resource Map of the United States, Little Chronicle Co., Chicago, 1918. 5 cents.
Resource Map of the United States, Armour & Co., Chicago, 1918. The last two maps are picture maps about 8 by 14 inches. They are printed in colors and show pictures of green forests, groups of white sheep, spaces of sugar cane, etc.

Historical Works: W. F. Gordy: History of the United States for Schools, Charles Scribner's Sons, New York, 1914.
J. B. McMasters: Brief History of the United States, American Book Co., New York, 1907.
A. B. Hart: School History of the United States, American Book Co., New York, 1918.

BLOCK DIAGRAMS

A FEW SIMPLE HINTS TO TEACHERS

By A. K. LOBECK
University of Wisconsin

With the use of the block diagram we are all familiar; we are less at home in its construction. To take pencil and paper in hand and interpret a particular landscape presents itself to most of us as a formidable task, for Nature apparently gives us land forms in infinite variety. But in fact this complexity is generally a matter of detail. In the broad interpretation of landscapes we recognize a limited number of physiographic types. These types may be built up on paper by means of a few simple geometrical patterns—basic forms common to mechanical drawing—straight lines, square-edged blocks, wedge-shaped blocks, cylinders, cones, spheres. Then by the smoothing away of awkward places and the addition of some detail the block diagram assumes a "natural" appearance.

DRAWING THE BLOCK

Let us start with the simplest possible land form—the ideal plain, level and unbroken. A solid rectangular section of the plain gives us the fundamental block from which all other forms are elaborated. First, then, we take the drawing of the block. Figure 1 presents a simple rectangular block lying in a convenient position just below the eye and showing two sides neither one of which faces directly toward the observer. This position of the block is one of the most useful ones because the block looks natural and pleasing and presents a considerable area upon which topography can be drawn. If the same block is drawn as though raised to a little higher level, as in Figure 2, the amount of the surface is diminished, but the sides of the block remain practically the same.

Now what principles must be observed in constructing the block? Only one. The lines forming the opposite sides of the block must be so drawn as to meet upon some distant line called the horizon. Any points upon the horizon may be selected for this purpose. The position of the two points and the attitude of the lines drawn toward them will of course determine the appearance of the block, but in any event the block will look natural. Look at Figure 3 and notice that two points have been selected and that all the lines have been directed toward one or the other of these two points. Any of these lines, or any other lines similarly drawn, may be used as the sides of a block.

Certain criticisms may be made upon the form of the blocks in the various parts of the figure. The blocks in the center are the most pleasing and useful. The blocks in the foreground are not so satisfactory. The blocks in the upper part of the view do not present enough surface. Blocks to the right or left sides of the view have only one side directed sufficiently toward the observer. But, even so, all of these different positions might be useful at different times. The particular purpose for which the block is drawn will determine its position.

In the blocks above described neither face is turned directly toward the observer. When one face is looked at square on, however, one set of lines remains parallel with the horizon, and consequently there is only one point selected upon the horizon toward which the other lines converge. This is shown in Figure 4. In

some ways blocks of this kind are even more useful than those already described. They are a little more easily drawn free-hand because only one vanishing point has to be kept in mind. The blocks to the right and left side of the view are usually more serviceable than those in the center because they show two sides upon which cross sections may be indicated.

The Representation of a Stream

We are now prepared to indicate some physiography upon the surface of the block. Select a block in a convenient position, like the first one shown. As we said before, in its present form it represents an undiversified plain. We wish to indicate upon this plain the course of a meandering river. The swinging curves of the river may be considered as being made up of parts of circles. The proposition, then, is to draw circles in perspective, a feat which becomes quite simple if we draw squares first and inscribe the circles in them. In Figure 5 a block is shown so drawn. Its surface has been squared off, circles have been inscribed in the squares, and parts of the circles have been emphasized to represent the course of a winding stream. The principle developed here is called foreshortening. This means that in the view the distance from front to back on the circle is not so great as is the distance from side to side. Tributary streams may be shown by subdividing into still smaller squares and inscribing smaller circles. A freer rendering of a stream is shown in the foreground in which the meanders are supposed to be not all of the same size nor all to be parts of circles; but the idea of foreshortening is preserved, and this gives the natural effect desired.

Plateaus, Mesas and Buttes

Plateaus, mesas, and buttes may be developed from flat rectangular blocks. In Figure 6 the flat block in the background resting upon a plain is in effect an undissected mesa or tableland. All it needs is a little modification to give it life. It needs a few valleys and some dissection along its sides. In the foreground of the same figure its outline has been so modified. Its shape may be materially altered, but, to satisfy the demands of foreshortening, the distance from front to back in the whole

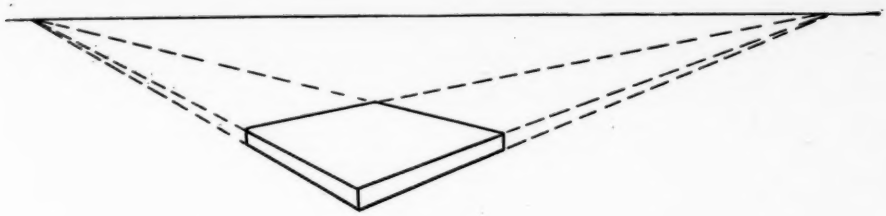


FIGURE 1

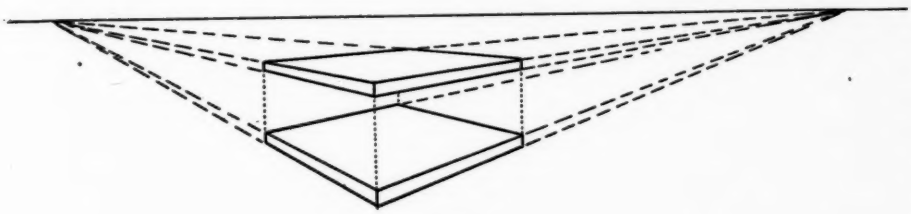


FIGURE 2

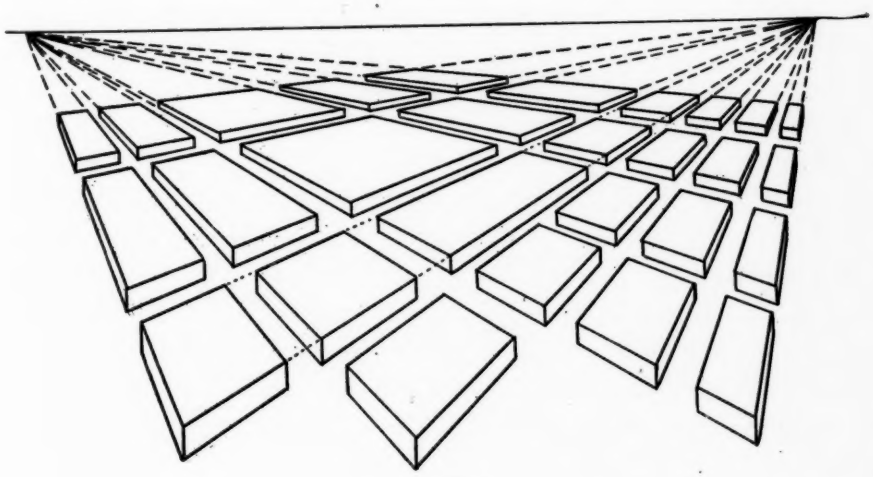


FIGURE 3

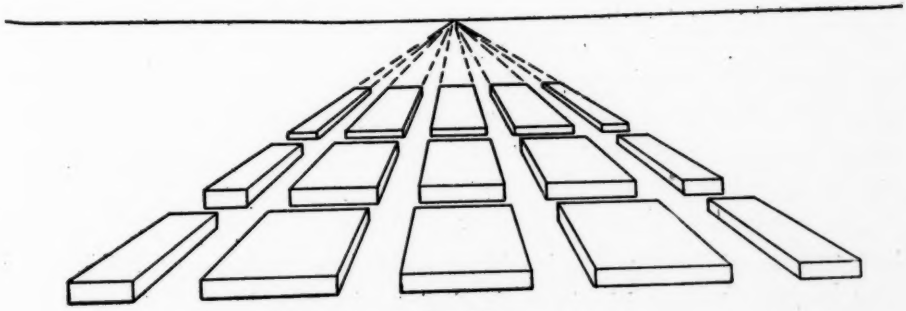


FIGURE 4

plateau as well as its minor projections should be kept shorter than the sidewise distances. Observing this rule makes the plateau "lie down," whereas otherwise, if the rule is neglected, the plateau seems to be curling up around its edges and has a warped and

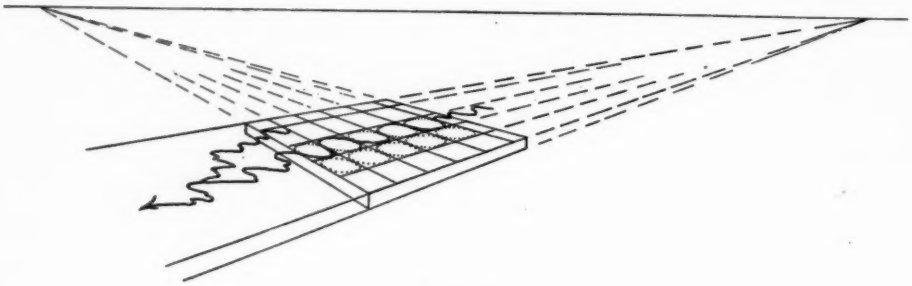


FIGURE 5

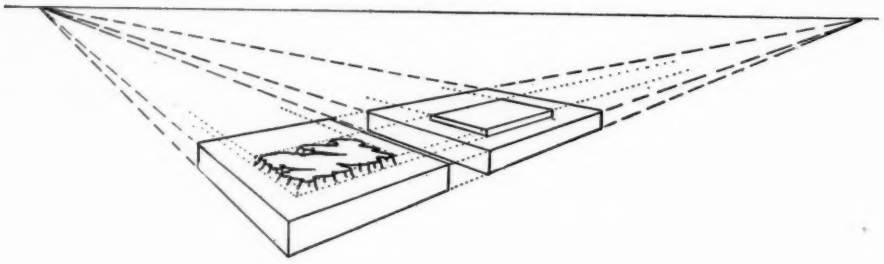


FIGURE 6

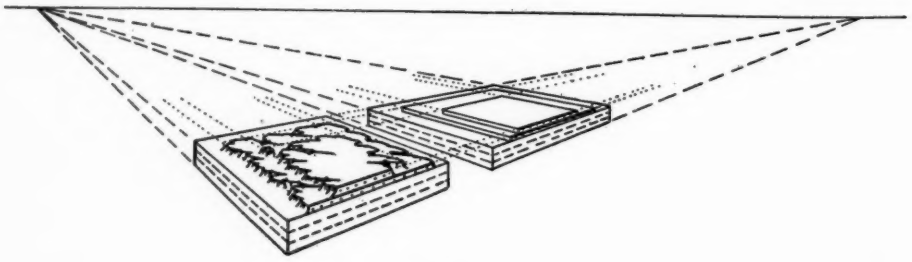


FIGURE 7

awkward appearance. The plateau may be still further elaborated, and the presence of two hard layers of rock may be suggested. A cross section of the structure may be shown on the side of the block. Figure 7 shows how this is done and quite explains itself.

COASTAL PLAINS

Coastal plains are derived from sloping surfaces or triangular and wedge-shaped blocks. In the background of Figure 8 the

framework is laid out for the development of a coastal plain. In order to show as good and full a cross section as possible, since this is an important feature in understanding the coastal plain, a type of block is selected which presents a full face-on view. Elaboration of this mechanically simple block consists in eliminating the material supposed to be removed by erosion. The result is the development of the two cuestas, not unlike the edges of

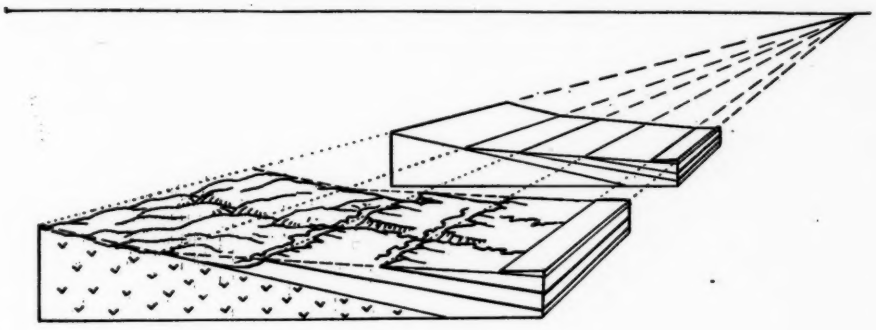


FIGURE 8

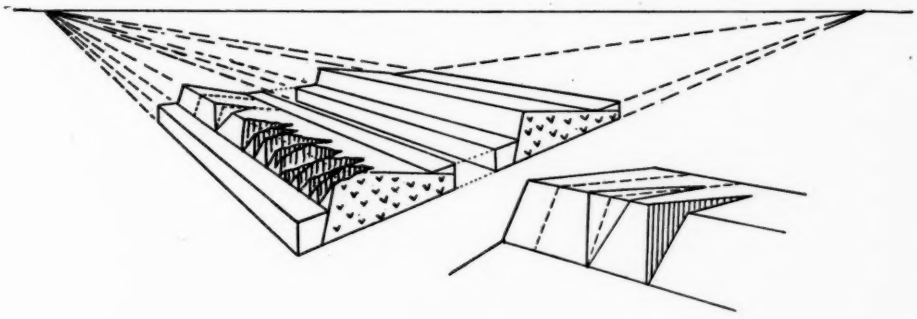


FIGURE 9

plateaus in general aspect. The irregular hills of the old land are also carved out, and a few streams are introduced upon the plain.

FAULT BLOCK MOUNTAINS

To show the features characteristic of dissected fault block mountains it is essential that a good view of the front of the fault block be provided, and with this of course there should be combined a transverse section to explain the structure. These requirements are met in Figure 9, which upon elaboration shows a progressive series of stages of dissection of the fault face. A single

notch interrupting the face of the fault block should be drawn as though symmetrically developed on each side of a median line. This is easily done if a guide line is used. Naturally the use of construction lines is immediately dispensed with when one notes the effect that is to be gained.

FOLDED MOUNTAINS

Folded mountains depend upon parts of cylinders for their form. The basis for such a diagram is shown in Figure 10, to-

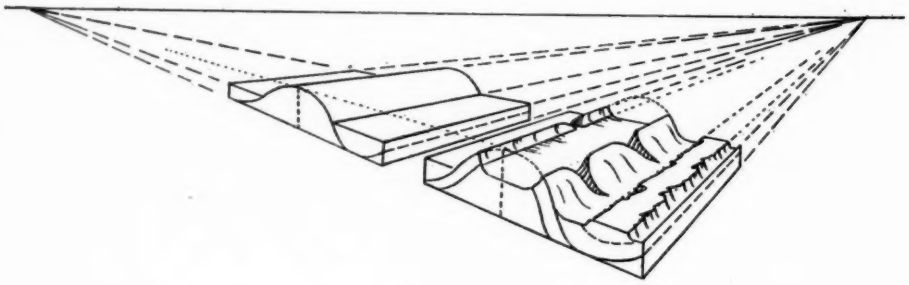


FIGURE 10

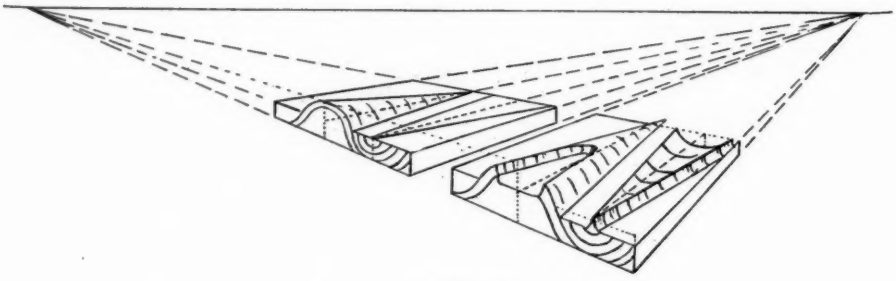


FIGURE 11

gether with the parallel features resulting from mature dissection. As in block mountains, care should be taken in drawing the stream notches to have their sides symmetrically placed with respect to a median line. These, of course, form the water gaps across the flat-topped ridges.

A similar schematic outline for pitching folds is shown in Figure 11. Erosion of this may be then made to produce the well-known canoe- and cigar-shaped mountains and the various anticlinal, synclinal, and monoclinal mountains and valleys. A little ingenuity on the part of the teacher will readily adapt this method

of developing topographic forms to other features of folded mountains not here shown, as, for instance, the successive stages in the development of Appalachian ridges, and to the formation of zigzag mountains.

DOME MOUNTAINS

Dome mountains have their form dependent upon part of a sphere or ellipsoid. Because the cross section is so important to an understanding of a dome mountain, an initial form something

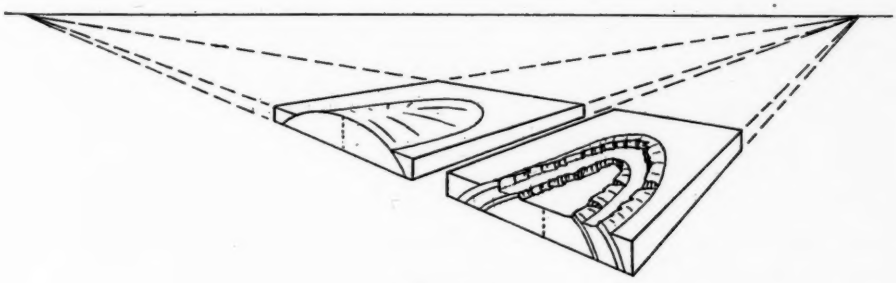


FIGURE 12

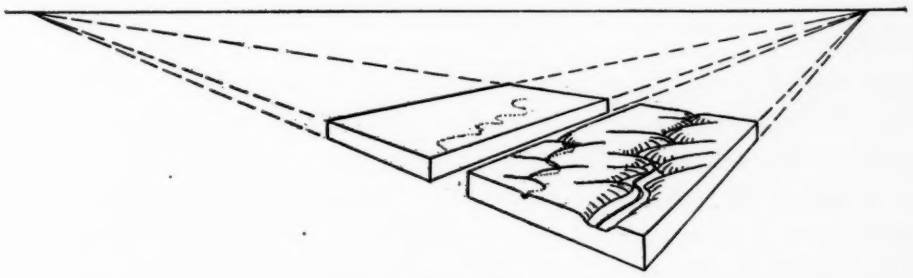


FIGURE 13

like Figure 12 is used. The dissected forms are easily drawn. No new principles are involved. Indeed, in many respects the forms resemble those of folded mountains.

Volcanoes, cinder cones, sink holes, alluvial fans—all make use of the circle as a basic element.

IRREGULAR FORMS

Perhaps the most interesting forms to draw are the irregular hills, mountains, and valleys that are developed by the erosion of complex rocks. The rear block in Figure 13 may be taken as representing a rock mass untouched by stream action. To produce the

"quilted" effect which results from erosion, lightly indicate on the surface the position of streams, not necessarily meandering streams but those having an irregular course. Be careful that the streams shall lie down, that is that the principle of foreshortening be observed. Lines tangent to the stream bends are then drawn so as to curve upward and flatten out on the summits of the hills as in the nearer block. These represent the spurs around which the stream is flowing. They may be elaborated and enli-

FIGURE 14

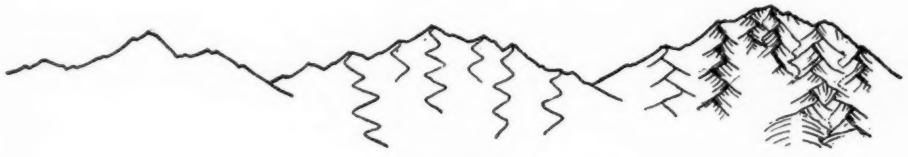


FIGURE 15

vened by a little shading, and other ideas may be introduced as in the foreground of the view where the valley opens out so as to present a flood plain.

Figure 14 represents a domelike mountain mass undissected. This may be treated in the same manner as the previous illustration. The stream courses are first shown on the sides of the mountain, after which the tangent hill profiles are drawn.

To represent ragged and angular mountain ranges a modification of the above method is adopted. First draw the irregular profile of the peaks. Then from each summit extend downward a zigzag line representing the crest line of the spurs. From the angles of these lines produce short barbs in the manner of Figure 15 and enhance the drawing with a few additional strokes of shading.

The teacher will, of course, realize that this is the barest outline of the subject and will find for himself many fascinating ways by which details may be introduced and elaborated. He will also realize that a small sketch on paper, prepared mainly to block

out the idea in a graceful way, can be very quickly enlarged for the blackboard and there put in a more effective form.

As a final word, it may be said that the general appearance and graceful position of the block is more to be desired than elaborateness of detail in the features. For a slight distortion in perspective is very quickly noted, even by the untrained eye, whereas a lack of technique in drawing details is more readily passed over; and, fortunately, facility in acquiring the first requisite is much more readily gained than in acquiring the second.

CURRENT OPINIONS ON THE FUNCTION OF GEOGRAPHY

Within the last few days three statements of the function and character of geography have been received in the office of the *Journal*. Coming from different sources it is interesting to note the agreement between them and the agreement with views recently put forth in the *Journal*.

Members of the National Council of Geography Teachers should make special note of "The Position of Geography," a statement issued by the Council of the Geographical Association of Great Britain (*The Geographical Teacher*, Autumn number, 1919), an organization whose aims are similar to these of our National Council.

The world must be studied as a whole. It is not the world as a mere aggregation of parts or elements that geography has to study. It is the organic unity of the world on which man "lives, moves and has his being" that Geography has primarily to investigate. This is no mere academic study at the present time, when men are saddled with the solution of problems, individual and social, which demand a knowledge of affairs all over the world. Nor will a knowledge of isolated facts suffice. We must try to understand the world relations which give those facts meaning.

Geography then deals with the real world, the world of which one learns best through one's boot soles or bare feet, or by means of trains, vessels, motor cars or aeroplanes, and only as a makeshift by description, pictorial or otherwise. But it does not end with a study of the externals thus presented. It deals with the reasons why the material world—regarded as a whole and made up of related parts—has come to be what it is. This involves relations with the natural sciences. It deals with the

way in which this material world has influenced man, and in turn has been modified, altered and adapted by human action.

There are then certain conditions to be satisfied if Geography is to perform its true function in education. Unless the subject matter is felt to be real it is of little value. Unless a study of the world is based on a knowledge of the actual physical facts it supplies no sound basis for future activities. Unless the relationship of man as a reasoning and purposeful being to this world of physical facts is considered and realised, Geography is deprived of its chief objective.

This tripartite Geography, real, scientific and human, takes a necessary place in education, valuable as culture, valuable as supplying knowledge of facts useful in everyday affairs, valuable and even necessary for the citizen in order that he may understand his duties.

Thus viewed, Geography has a unity of its own, but it is also related to two groups of studies which have been called the Arts, or Humanities, and the Natural Sciences, and it is this relationship which is at once the root of its cultural strength and its weakness as a mere subject of examination.

Geography is scientific not merely in the sense that History or Latin is scientific. It deals with natural phenomena in a way in which the humane subjects do not deal with them, and it has definite relations with the natural Sciences rather in the way in which Natural Sciences have relations with each other. It has relations with Meteorology in the same way as Meteorology has relations with Physics or Physics with Mathematics, it has relations with Botany in the same way as Botany has relations with Chemistry. In these cases some definite knowledge of the one science is necessary for a student of the other. The student does not require to have an exceedingly deep acquaintance with those natural sciences which Geography touches, but he does require to know more than is necessary for a general education. He requires not merely to have general ideas but to have some accurate knowledge of scientific facts. It is in this sense that Geography is specially related to the Natural Sciences.

On the other hand, Geography has relations with the Humane subjects not shared by the Natural Sciences. These latter, it is true, are not wholly divorced from humane associations. But Geography deals directly with human beings, with the results of their actions, with the results of their thoughts; the object of the study is to understand conditions under which men think and act in the varying circumstances of the various regions of the world. Geography is thus essentially concerned with the manifold diversity of man and of his problems and opportunities. It may thus claim to contribute in a unique fashion to an education which aims at the appreciative interpretation of the modern world. In this it is specially aided by History. Geography is essential in the study of the past, but it is more important to realise that History is an aid to Geography in the interpretation of the present. Based on the bed-rock of physical facts,

Geography rears its head into the region of human endeavour. It is a well-balanced subject.

Turning now to one of our own educational periodicals, we find a suggestive paper, "The New Geography," by Roderick Peattie in the current *Educational Review* (December, 1919). Mr. Peattie defines the "new geography" as "the study of a region's domination of a people . . . of the cultural diversity of peoples and the reasons which lie back of that diversity." With an emphasis solely on the region we should disagree, but our challenge is met in the subsequent recognition of man's own place.

Heredity is a complex factor and in many cases difficult to discern through the dim past. It is a great element in the racial mould, a matter of moral, mental, and physical evolution, and, however much this may be guided by physical environment, there still stand as prime controls in the development of the human race, the growth of the soul, genius, and initiative. The main criticism of present-day geographers is that, in spite of their protestations to the contrary, they are prone to forget this. Their difficulty lies in the fact that the force of heredity is not commensurable, any more than that of physical environment, and that none but the most qualified terms may be applied to their potencies.

The prime value of geography arises out of the fact that it is essentially a subject of interrelations, 'le principe de connexité,' the French call it.

Facts—human facts—are not isolated in reality, but are complex and interwoven and should be studied with this in mind. Vidal de la Blache, one of the greatest of French geographers, said, in the preface to his atlas, that maps political, physical, geological, climatological, and statistical should be studied in conjunction with each other, as they are inter-explanatory and individually do not present their full significance. Thus geography touches most of the branches of knowledge which pertain to man. Anthropology, biology, history, sociology, economics, commerce form a group for which geography functions analytically, drawing data from such basal sciences as physiography and climatology.

From its analytical character further progress is made to constructive helpfulness.

. . . the spirit of the new geography is to reach out to all types of men, and to give in terms they can understand, and in a manner which is readable to the layman, the truth about the most interesting subjects in the world—themselves and their neighbors. . . . Democracy lies in no small part, not in an Utopian universal love for all the peoples of the earth, but in an appreciation of why one's neighbor, near or remote, is what he is. . . .

The author gives an illustration of this sympathetic appreciation—brief glimpse though it is—in the opening paragraph of the article.

> In a village on the shores of the Lower St. Lawrence valley I encountered in the home of a habitant a scene which I shall not forget. In the room was an old man and with him was a black-robed curé and a young woman with a baby. The room was not large and was dominated by the huge fireplace that was the life of the cabin through the long winter. The windows, which were casemented as they might have been in France, lit the scene dimly. As I entered the old man was singing, and the priest was nodding his head in time with the familiar refrain. It was an old, old song, the story of Tristan and Iseult, and the language in which he sang it was the French of days gone by, the French of his Norman forefathers in the time of Louis XIV. Word for word he sang it as it had been handed down to him, while in the chimney corner the young woman hummed the melody to his grandson as a lullaby. Unless something alters the isolation in which this cabin rests the grandson will sing it to his grandson, word for word, and in the same quaint, almost archaic forms.

This conservation, this "remarkable example of crystallization of a former culture," is a result of geographic limitation, the limitation imposed by isolation. Isolation is one of the potent geographic factors in the Lower St. Lawrence Valley.[1] If we realize this we shall have a deeper appreciation of one of the great problems that today confronts the Dominion of Canada. It is but one of a host of problems, national and international in their scope, that have been more clearly revealed as a result of the war. They are matters of which we have been largely ignorant and ignorant as well of the aid that geography can bring to their solution.

> . . . without training in the principles of the new geography, one is unable as a good citizen to give an intelligent hearing to the problems of the day—those problems which range from the mysteries of diplomacy and the League of Nations to the adjustments of local freight rates. It is this training which makes for the difference between one of the mob and a thinking patriot.

"Geography in the University" in the educational section of the *Christian Science Monitor* for November 21, 1919, comments on the need for the new geography. The backward state of this geography in the American Universities is deplored.

> . . . of geography as the study of the controlling factors in the life

[1] For amplification see the author's article "The Isolation of the Lower St. Lawrence Valley," *Geogr. Rev.*, Vol. 5, 1918, pp. 102-118.

and activities of peoples, as the essential basis of any knowledge of humanity, as the only road to the sound investigation of the problems of today, there is little trace.

What we want today, more than ever before, is some means for bringing the knowledge represented in the "humanities" into actual relation with life. We have at present a vast accumulation of facts about mankind embodied in subjects such as anthropology, the classics, history, political science, and economics.

To make these facts, in themselves more or less isolated and academic, utilizable in the solution of the vexed problems confronting society they must be brought together in a broad comparative study. Here geography affords a basis.

Now, even an elementary study of geography forces one to consider the whole earth; it forces comparison between countries, and peoples, and cultures. Geography supplies, therefore, the much-needed foundation for a rounded study of man.

THE BRITISH COAL TRADE

The year before the war the United Kingdom shipped out of the country 75,000,000 tons of coal, an amount between 35 and 40 per cent of the world's total coal export. During the war this export was cut down by more than half and all shipments were under government regulation. First provision had to be made for the British and Allied vessels. Certain strategic coaling stations needed abnormal amounts. Thus in 1918 Gibraltar received 1,600,000 tons and Malta 1,200,000 tons where normally both stations received 300,000 tons. Needs of the Allied forces in France called for unusual shipments to that country. Distant markets were ignored and neutrals received cargoes of coal only for specific services rendered.

The effect of this disorganization on the general economic and commercial life of Britain was profound, for coal occupies a unique place in British trade.[1] The manufactured goods that form Britain's principal exports occupy small cargo space compared with

[1]The importance of coal in British trade is well analyzed in Seaways of the Empire by A. J. Sargent (A. & C. Black, Ltd., London, 1918). Coal traffic along the great routes is graphically illustrated in a series of interesting diagrams.

the bulky imports of raw material. The exceptional export is coal, the only bulk cargo. Hence it forms not only a medium of exchange but a means of economical transport. An examination of some of the coal trade circuits makes this clear.

While the great proportion of British coal goes to Europe and the Mediterranean, Britain has one important distant market in South America. Outgoing steamers carry cargo whose bulk is coal supplemented with machinery, cloth, cement, etc. Grain and meat supply a full return cargo for about five-eighths of these vessels. Others go north in ballast to the United States to find a cargo for European ports. Some of the boats carrying coal to the Mediterranean and Black Seas return in ballast or proceed to the Orient, but the majority return with grain, ores, oil, and cotton. In part these products are taken to continental ports of the North Sea. Thence cargoes are obtained for Britain. In this way quantities of German goods were cheaply imported into England before the war. Cheap sea transport also enabled coal from the Tyne ports to compete at Hamburg with Westphalian coal and similarly in the eastern Baltic with Silesian coal. Ships carrying coal to the Baltic returned with timber, grain, flax, linseed, oil-cake and paper pulp (Suppl., No. 19d, Wales, *Commerce Reports,* Washington, D. C., 1919).

ILLUSTRATIVE MATERIAL ON FORESTS AND FORESTRY IN THE UNITED STATES

Teachers giving courses in the commercial geography of the United States or in the conservation of natural resources will be interested in the following announcements by the Forest Service.

TRAVELING EXHIBITS OF COMMERCIALLY IMPORTANT WOODS OF THE UNITED STATES WITH RELATED DATA

The Forest Service has prepared, for loans to schools, libraries, and other educational institutions, sets of thirty samples of commercially important woods of the United States, together with maps showing the region

in which each species grows, the natural forest regions of the United States, and the National Forests. Short statements give the principal uses and physical characteristics of the woods, and charts and tables show forest products by states, the rise and fall of the lumber industry, and the percentage of lumber supplied by different regions.

These exhibits are loaned for short periods on condition that the borrowers agree to pay transportation charges, to be responsible for the material while charged with it, and to forward it promptly at the direction of the Forest Service. *Applicants should state that they agree to these conditions.* Effort is made to arrange itineraries of the exhibits so that borrowers will usually have to pay for transportation only one way, and that wherever practicable transfers may be made between borrowers residing near each other. The last borrower on the list, however, is always asked to pay transportation charges to Washington. Each exhibit packed for shipment weighs about 30 pounds.

TRAVELING PHOTOGRAPH EXHIBITS AND LANTERN SLIDE SETS

Special collections of 44 enlarged photographs of the forests of the United States, showing how they are used and how they may be preserved are available under similar conditions. The series with their descriptions form illustrated "stories" of special features of forest work and forest conditions.

Sets of about 50 colored lantern slides, each set accompanied by a syllabus for a lecture, will similarly be loaned for short periods. These sets are usually engaged for a considerable time ahead and application should, therefore, be made in advance. The subjects upon which sets are available for use in schools are: Nature Study and Forestry; Botany and Forestry; Manual Training and Forestry; Geography and Forestry; Life of a Tree, Farm Forestry in the South; Agriculture and Forestry; The Farm Woodlot.

Application for the loan of exhibits should be made directly to The Forester, U. S. Department of Agriculture, Washington, D. C.

GEOGRAPHICAL PUBLICATIONS

RECENT PHYSIOGRAPHIC MATERIAL

Shore Processes and Shoreline Development. By Douglas W. Johnson. 584 pp., ills., index. Wiley & Sons, New York, 1919. $5.00.

The principles of shoreline physiography as interpreted by leading authorities are here brought together and analyzed. The main part of the work is a systematic treatment of shoreline forms. As a necessary preliminary the first chapters deal with the operating forces—the waves and currents, their types and work. Each chapter is accompanied by an extensive bibliography indicative of the thorough-going character of the

work. This perhaps sounds a little alarming to anyone whose interest in the subject is more relative than absolute, but there is no occasion for discouragement. Thanks to the general arrangement and in particular to the clear summaries—an advance summary precedes and a résumé concludes each chapter—any point concerning shoreline development may be readily consulted. The illustrations will prove helpful and suggestive. Needless to say there are many block diagrams as well as other diagrams and sketches and there are a number of admirable photographic illustrations. Special reference might perhaps be made to the beautiful series illustrating the fiord coast.

The Superb Position of New York City as a Center for Physiographic Study. By A. K. Lobeck. pp. 50; maps, illus. Annals of the New York Academy of Sciences, Vol. 28, 1919. New York.

Mr. Lobeck here considers the area in a 300-mile radius of New York City, an area which includes within itself such diversified and peculiarly interesting points as Niagara Falls, Cape Henry, the Blue Ridge and Shenandoah Valley, the Adirondacks, the Allegheny Front in western Pennsylvania, and the White Mountains. Furthermore, from the standpoint of the out-of-doors physiographer the region is possessed of unrivalled means of transportation.

Under the respective headings of destructional and constructional forces illustrations are given of the varied topographic forms that may be studied. Following these examples, that sound so tempting to the enthusiast, several itineraries for field trips are sketched out. The trips range in extent from the half-day excursion, as, for instance, that spent studying the glacial features of Staten Island, to a one to two weeks trip that will give a grasp of all of the New England physiography and a month trip in which the entire area may be covered. In each case note is made of the material—maps, papers, etc.—that may be studied most profitably, and these with the final bibliography should be useful to all teachers of physiography, whether or no they are able to undertake the field work. Of much service also are the illustrations, which include block diagrams and sketches.

NOTICE

Readers of the *Journal* are reminded that February 15 is the closing date for the Prize Essays competition.

In response to numerous queries it may be stated that the competition imposes as few conditions as possible. Beyond the actual limits set in the September announcement treatment is left to the discretion of the teacher. What the competition does call for, however, is expression of the *true geographical spirit*. This will be the decisive factor in making the award.